Research Proposal

Oil and Spill-Control Methods

Problem Title. Which oil and spill control methods are most feasible for transportation considering limited maintenance resources?

Problem Statement. In some limited circumstances, WSDOT will have to provide oil and spill control on runoff from certain high-use intersections and in aquifer protection areas. Most of the oil control best management practices (BMPs) provided in the *Stormwater Management Manual for Western Washington* are designed to separate very high concentrations of light oil in liquid form from water. In contrast, characterization studies have found that highway stormwater runoff generally contains very little free floating liquid, with most petroleum hydrocarbons residing as emulsified/dissolved oils or adsorbed to fine particulates. Moreover, API, coalescing plate, and boom-type oil/water separators in catch basins are very maintenance-intensive, which makes regular clean-outs problematic. WSDOT has interim approval from Ecology to use oil booms in detention ponds rather than in catch basins to capture floatable oils. This should improve inspect-ability, but still lacks any appreciable storage capacity to control substantial spills. Some commercially available hydrodynamic separators, such as Vortechnics®, Stormceptor®, Downstream Defender, etc., have the capability to capture floatable oils, but their effectiveness in doing so is not quantified.

An associated question that could be addressed by the proposal:

> What volume-capacity for spill-controls is needed?

Literature Search. No studies identified.

Research Methods. Vortechnics® has applied for a conditional use approval so that their equipment can be used for TSS and oil removal at sites that do not discharge to surface waters. Any monitoring for oil control should be evaluated to see if the effectiveness is good enough to be included in the *Highway Runoff Manual*. If oil booms are used in wet ponds for oil control in future highway projects, appropriate maintenance cycles should be investigated. In future BMP monitoring studies, fund appropriate sampling methods and lab analyses to evaluate the oil control capability of the monitored units.

Partnering Opportunities. Few, if any. Oil control is needed only in specialized situations, so its economic impact on most projects is relatively small.

Estimate of Costs and Research Duration Estimated costs have not been developed, but are expected to be less than $50,000.

Urgency, Payoff Potential, and Implementation Research could lead to more effective oil control facilities and cost savings through reduced maintenance requirements.

Research Proposer.

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Research Monitor (to be assigned, as needed, by the research program administrator)

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